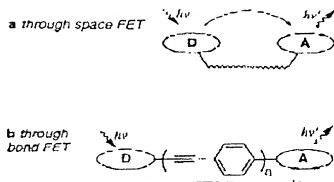


Figure 1. a Through space FET from a donor dye D to an acceptor dye A;
b through bond FET.



FIGURES 1A & 1B

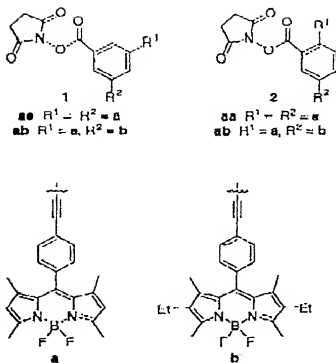
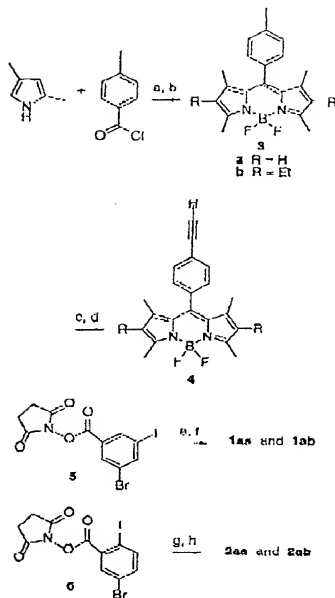


FIGURE 2



Scheme 1. Syntheses of the cassettes **1** and **2**. a) CH_2Cl_2 reflux; b) $\text{BF}_3 \cdot \text{OEt}_2$, NEt_3 , MePh, 80°C , 26% (2 steps) for **3a** and 39% (2 steps) for **3b**; c) HCClMS , NEt_3 , cat. $\text{Pd}(\text{PPh}_3)_4$, cat. CuI , MePh 60°C , 99% for **a** and 96% for **b**; d) TBAF, THF, 0°C , 60% for **a** and 58% for **b**; e) **4a**, NEt_3 , cat. $\text{Pd}(\text{PPh}_3)_4$, cat. CuI , MePh 50°C , 96%; f) **4a** or **4b**, NEt_3 , cat. $\text{Pd}(\text{PPh}_3)_4$, cat. CuI , MePh 80°C , 65% for **1aa** and 23% for **1ab**; g) **4a**, NEt_3 , cat. $\text{Pd}(\text{PPh}_3)_4$, cat. CuI , MePh 45°C , 83%; h) **4a** or **4b**, NEt_3 , cat. $\text{Pd}(\text{PPh}_3)_4$, cat. CuI , MePh 80°C , 65% for **1aa** and 17% for **1ab**.

FIGURE 3

Table 1. Important spectroscopic data for compounds **4**, and the cassettes **1** and **2**.

	λ_{max} (abs) ^a (nm)	λ_{max} (em) ^a (nm)	energy transfer (ET) efficiency ^{b,c} (%)	ratios of fluorescence intensities ^c
4a	504	515	-	-
4b	529	543	-	-
1aa	504	515	-	1aa:4a 1.5: 1.0
1ab	505 and 529	542	>90	1ab:4b 2.2:1.0
2aa	504	516	-	2aa:4a 1.6:1.0
2ab	505 and 529	543	>90	2ab:4b 1.7:1.0

[a] in CHCl₃. [b] where ET = {1 - (fluorescence intensity of donor emission in cassette)/(fluorescence intensity of donor alone)} x 100 % [c] excitation at 488 nm.

FIGURE 4